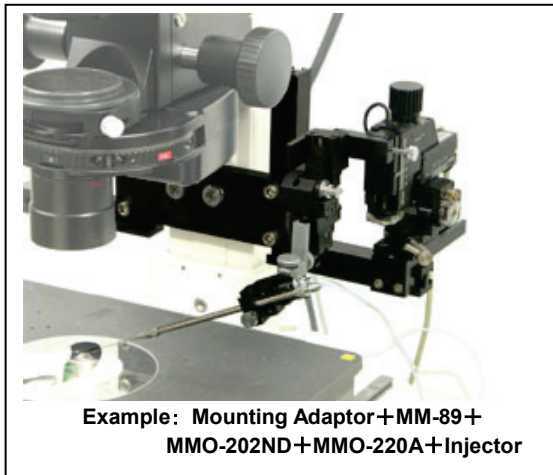


DNA/RNA Microinjection

Microinjection is a popular method whereby a micropipette is directly inserted into a targeted sample to deliver DNA, RNA or other fluids. *C. Elegans* or *Xenopus* eggs are the most popular targets for experiments. This issue discusses common applications for these two experiments.

◆◆ *C. Elegans* ◆◆

C. Elegans is a worm that lives in soil. It is about 1mm in length and has a white elongated body. *C. Elegans* is easy to observe under a microscope. It has a short growth cycle and a friendly generation process for researchers who promote research on *C. Elegans*. Genomic analysis on *C. Elegans* is already completed.

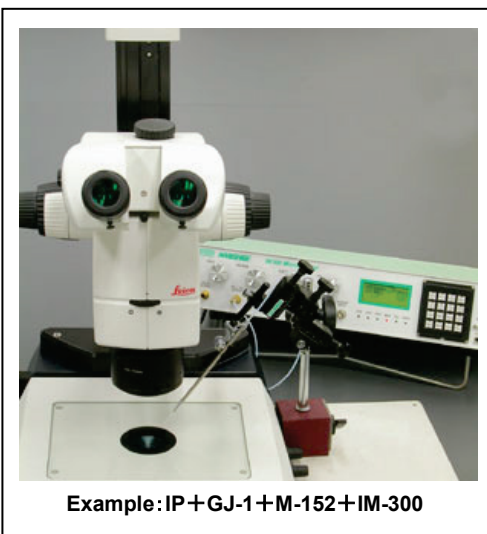


Example: Mounting Adaptor+MM-89+
MMO-202ND+MMO-220A+Injector

Microinjection to *C. Elegans* is often performed with an inverted microscope. *C. Elegans* are laid on an agar culture for preparation. A micropipette approaches *C. Elegans* from a low angle or almost horizontally. The micropipette can be made with the PC-10 Puller as it is pulled without processing the tip with a microforge. The micromanipulator is installed only on one side of the microscope. A simple manual manipulator such as the M-152 is used to set a micropipette in position while the microscope stage is moved to insert the micropipette into the sample. However, responding to requests for more precise operation, we often recommend the combination of MM-89 (or MN-4), MMO-202ND and MMO-220A. When the operation is done under low magnification, the combination of M-152 and MMO-220A can be used. For delivery of the fluid to the sample, an electric injector is commonly used. We recommend the IM-31 or IM-300 microinjectors.

◆◆ *Xenopus* ◆◆

Xenopus is a type of frog. Frog eggs are produced in large numbers and are visible to the naked eye. These characteristics are very helpful for research on *Xenopus*.



Example: IP+GJ-1+M-152+IM-300

Microinjection to *Xenopus* eggs is often performed with a stereomicroscope. The eggs are fixed in position with the help of a self-made preparation platform or a mesh available for purchase in the market. (For examples of fixing methods, please refer back to Newsletter No. 033.) A micropipette can be made with the PC-10 Puller and you can cut the tip to about 10-20um in diameter with a small blade. A micromanipulator is installed only on one side of the microscope. Precision tends to be less important than making more samples. The operation is done under low magnification. The M-152 or equivalent manual manipulator is commonly used with a magnetic stand. Fine movement is basically not required, however the MN-153 or adding MMO-220A to M-152 can help with further precision. The fluid is often delivered to the eggs with a manual microinjector such as the IM-11-2 and IM-9B, but electric microinjectors such as the IM-31 or IM-300 are also widely used for enhanced precision or repeatability.

◆ The application for *Xenopus* eggs can also serve for microinjection to Zebrafish eggs or Killifish eggs

If you have any questions or need further information, please contact us.